

Simplot Responses to Agencies' Comments (September 12, 2016)
Smoky Canyon Mine Feasibility Study Technical Memorandum (FSTM#1):
Development and Screening of Remedial Alternatives (May 2016)

This document provides Simplot's responses to comments on the draft FSTM#1. Agency comments are shown in italic text and each comment is followed by Simplot's response.

GENERAL COMMENTS:

GC-1 *Risk Assessment:* *The Alternatives do not appear to address consumption and use of vegetation at the site. It does not appear this exposure pathway is addressed. Please clarify.*

Response: Remedial action objectives and PRGs were established for COPCs in vegetation at the Site (see page 3-6 and Table 3-3, respectively). More specific text on the effectiveness of the remedial alternatives to meet these goals will be added to Section 5, per Specific Comment 111.

GC-2 *Section 2.2, Nature and Extent of Contamination:* *This section only discusses selenium. The remedy will need to address all COCs identified through the remedial investigation and risk assessment phases and not limit the discussion to selenium.*

The TM does not provide a PRG for selenium in soils, but provides cover alternatives that would appear to address soil contamination at the Site. The RAO of unacceptable risks to terrestrial biota from soil has not been discussed within the TM with regards to a PRG and effectiveness of each alternative. Furthermore, the PRG of reducing site wide arsenic concentrations is ambiguous and needs further definition. How would the effectiveness of the remedy for arsenic be evaluated with the proposed PRG?

Response: The document will be revised to provide a discussion of all COPCs that were identified above levels of concern in the risk assessments or above ARARs for water quality.

For terrestrial environments, the ecological risk assessment found that the relative selenium exposure is much greater from plants than from soil ingestion. Therefore, the draft document provided a PRG for vegetation only that would be protective for both exposure pathways. However, per the comment, a PRG for selenium will be calculated and provided for the soil ingestion-only exposure pathway. The discussion of effectiveness to meet this PRG will be added to Section 5, per Specific Comment 111.

Section 6.2.1 of the human health risk assessment described the estimated risks to seasonal ranchers from ingestion of beef. Background arsenic concentrations in soil were estimated at 11.5 mg/kg. The 95UCL for arsenic concentrations in soil was 5.6 mg/kg on private lands, and 16.2 mg/kg Site-wide. The highest upper-bound estimates of average concentrations were on the uncovered ODAs, on Panel A Area 2 (27.5 mg/kg) and D Panel (14.7 mg/kg). Based on the risk estimation approach and the Site data, a PRG of 11.5 mg/kg for the Site-wide UCL concentration is proposed.

GC-3 *Section 3.2, ARARs Tables:* The table should include additional information so one can determine what the action(s) are that are triggering each ARAR. Then one can better assess the applicability of a given ARAR. In addition, please include more details in the summary for each ARAR, as well as an evaluation of how it is applicable at the Site. For example, for the Chemical-Specific ARARs, the CWA is cited in its entirety of the statute with the statement “Water pollution prevention and control.” This information does not help one determine what parts of the CWA are applicable or relevant and appropriate.

More specifically, the 40 CFR Part 230 regulations need to be included as ARARs to address potential impacts to wetlands. Also, 40 CFR Part 6 Appendix A no longer exists. It is now a stand-alone statement on EPA’s webpage titled “Statement of Procedures on Floodplain Management and Wetlands Protection” and can be found at <https://www.epa.gov/sites/production/files/2014-08/documents/floodplain-management-wetlands-statement-pg.pdf>. The Federal Register notice that removed Appendix A explicitly says the statement remains in effect. Without more information on what actions are anticipated, it is hard to determine what ARARs are applicable. If there are impacts to wetlands, then Section 404 of the CWA, 33 CFR Parts 320-330, and 40 CFR Part 230 are ARARs, while EO 11990 and OSWER directive 9280.03 would both be TBC. The Statement of Procedures on Floodplain Management and Wetlands Protection would also be TBC. Guidance documents are generally listed as TBC. TBC includes any advisories, criteria, or guidance developed by EPA, other federal agencies, or States that may be useful in developing a CERCLA remedy. However, the Forest Plan is an ARAR rather than TBC since it is promulgated under a statutory authority. The following few ARARs that should be considered for inclusion are:

- Chemical Specific
 - CWA 303 and 304
- Action Specific
 - CWA 402 – discharge of pollutants into waters of the US
 - CWA 401
 - Fish and Wildlife coordination Act – 16 USC 662, 663; 50 CFR 6.302(g)
- Location Specific
 - Native American Graves Protection and Repatriation Act, 25 USC 3001-3013 and 43 CFR 10
 - FEMA Floodplain regulations at 44 CFR 60.3(d)(2) and (3); 44 CFR 9 (goes along with EO 11988 and EO 11990)

Response: Additional information will be included in the tables so that it can be determined what the actions are that would trigger each ARAR. As noted in the comment, in some cases, the ARARs are too broadly described and these will be modified to focus on the specific parts that are potentially ARARs. The ARARs described in the second half of the comment will be included in the revised document.

GC-4 The term “unacceptable risk” is used extensively in many areas without further delineation of what that really means or reference to specific documents which define what that means. Please

provide more detail as to what the term “unacceptable risk” means so the statements are more transparent.

Response: In the revised document it is proposed to define the term “unacceptable risk” for human health as cancer risks greater than $1\text{E-}6$ (arsenic only), for Hazard Quotients (HQs) greater 1, or for ingestion of groundwater with arsenic or selenium concentrations greater than MCLs.

For ecological receptors, the EPA ecological risk assessment guidance (1997, 2002) indicates that unacceptable risk can equate to a range of conditions, from a strict interpretation of HQs greater than 1 to risk estimates that incorporate consideration of background. For Smoky Canyon, risk management actions are focused on areas where the selenium risk is elevated above the ‘baseline’ risk observed in unaffected or minimally affected parts of Sage Valley. The HQs in Sage Valley typically exceed 1.0, but since conditions in these areas approximate a baseline or background condition, remediation would not reduce risks for ecological receptors and have not been proposed. Simplot recommends that for ecological risk, the term “unacceptable” be replaced in discussions in the main text of the document with the term “elevated” with general reference to conditions in Sage Valley. This change does not affect the areas of remediation in the remedial action alternatives, which each contain covering of ODAs with local, naturally occurring material at the surface.

GC-4 Chapter 4: *The discussions regarding the general response actions are confusing. In some instances, it is difficult to tell whether a technology is screened out in the initial screening phase based upon technical considerations or in the second screening phase based upon effectiveness, implementability and relative cost. Please clarify.*

Response: The text in Section 4.4 and accompanying figure (Figure 4-2) for the initial screening phase will be clarified as requested to state whether a technology has been screened out for technical implementability (NOT Retained) or has been retained (Retained). The text in Section 4.5 and accompanying figure (Figure 4-3) for the evaluation of technologies and process options for effectiveness, implementability, and cost, will also be clarified. Some of the treatment technologies/process options initially screened out will be retained because they are technically implementable; however, they will be eliminated in the second screening phase for effectiveness, implementability, or cost.

GC-5 Sections 5.0-5.3: *These sections are confusing as to how they reach the combinations of various technologies and media treatments. It would be beneficial to separate treatment technologies by media, then provide a range of options that can be combined at the end rather than combining them up front. The text is difficult to follow. What is the basis for only using the pilot system technology for treatment? There is no explanation of other water treatments and why they are not included as potential alternatives. The assumption that simple addition of a third FBR would result in a linear increase to 3000 gpm of treatment without any discussion leading up to this conclusion is potentially faulty logic. No mention of the other technologies used in conjunction with the FBR, (i.e. Ultrafine Filtration or Reverse Osmosis) and the needed increase in size or complexity of these systems is included.*

This entire section needs to be reevaluated and approached in a more transparent manner to

allow the reader to follow the conclusions in the text.

Response: The text in Sections 5.0 through 5.3 will be modified to provide a clearer description of how water treatment remedial technologies and process options were combined into the remedial alternatives. This will be supported by additional text in Section 4. Also note that passive/semi-passive water treatment is proposed to be included in Alternative 2 for seeps at DS-7 and LP-1, based on the results of the DS-7 pilot study.

GC-6 Section 5, Cover Selection: *It is not clear why the “Enhanced Dinwoody” cover option being constructed at Panel F is not included in any of the alternatives. Please explain why this is not considered or include it as a technology to be considered.*

Response: The “Enhanced Dinwoody” cover option will be added as an option to the Infiltration-Reduction Covers under Alternatives 3 and 4.

SPECIFIC COMMENTS:

SC-1 Section 1.2, page 1-3, first paragraph, third paragraph: *Please replace “Authorization” with “Permit”; change “SUA” with “SUP” and delete “Soda Springs Ranger District”.*

Response: The text will be changed as requested.

SC-2 Section 2.0, page 2-1, first paragraph, third sentence: *This sentence indicates that selenium is the risk driver for all media and receptors, however this is not accurate (particularly for human health). The conclusions of the HHRA stated that “potentially unacceptable risks from selenium were only observed for the Hypothetical Resident scenario in which groundwater is used for domestic drinking water supply.” Whereas, arsenic in surface water, domestic supply, and beef present the greatest cancer risk to humans. Please revise this section to more accurately reflect the conclusions from the risk assessments.*

Response: The section will be revised to more fully describe the findings of the risk assessments, including COPCs other than selenium that were found to pose an unacceptable risk.

SC-3 Section 2.2, page 2-8, Soil, first sentence: *Please revise “... external ODAs is the source of selenium to the environment” to read “... external ODAs are the source of selenium and other COCs to the environment.”*

Response: The text will be changed as requested.

SC-4 Section 2.2.1, page 2-9, Vegetation, last paragraph, eighth sentence: *Please elaborate on what is meant by “certain plant species.” More detailed information is important for understanding the rooting depth of these types of species and which species may be targeted for any potential spraying/eradication program.*

Response: The text will be revised to describe the selenium accumulating and potential hyperaccumulating plant species that were observed at the site.

SC-5 *Section 2.2.2, page 2-10, Alluvial Groundwater, first paragraph: Reference a figure number with monitoring location, GW-15, for ease of reader use.*

Response: Monitoring well locations will be added to an existing map figure or a new map will be added so that well GW-15 can be referenced as requested.

SC-6 *Section 2.2.2, page 2-10, Alluvial Groundwater, second paragraph: Final sentence says that the transport pathway will be further reduced in the future. Please delete this sentence as this section is discussing the nature and extent of contamination; potential alternatives not yet identified.*

Response: The sentence will be deleted as requested.

SC-7 *Section 2.2.2, page 2-11, second and third paragraphs: Prior to the 2006 NTCRA, selenium concentrations of water discharged at the toe of the ODA were in the 0.5 to 1.5 mg/L range. Following the NTCRA, the concentrations have increased almost an order of magnitude to a range of 3 to 6 mg/L, although with reduced flows. This increase in concentration bears further discussion.*

Response: Further discussion will be provided in this section regarding the increase in selenium concentrations at the ODA toe seep, after implementation of the 2006 NTCRA, which is a result of the decreased flow/volume of water available for dilution of selenium in the seep water.

SC-8 *Section 2.2.2, page 2-12, second paragraph: Please include measurements of selenium loads and concentrations in the discussion in this paragraph.*

Response: Selenium concentrations and calculated selenium loads will be added to the discussion in this paragraph on the springs' discharges.

SC-9 *Section 2.2.5, page 2-13, second paragraph: The discussion on small mammal tissue concentrations should not only be focused on selenium since other COCs (particularly copper) have been shown to have tissue levels high enough to pose risk to wildlife using in individual disposal units and on a site-wide basis. Some of these have resulted in quite high hazard quotient estimates (HQ >80 for Northern harrier) using effect-based toxicity reference values (TRVs). Please revise.*

Response: The discussion on small mammal tissue concentrations will be updated to include a synopsis of copper results from small mammal tissue sampling in 2010 and re-sampling conducted in 2016. Further review of the copper small mammal tissue copper results is ongoing and is expected to provide information that will update the copper-related risk findings presented in the ecological risk assessment.

SC-10 *Section 2.3, page 2-14, last paragraph: The phrase "not operable" should be replaced with "insignificant".*

Response: The text will be revised as requested.

SC-11 *Section 2.4.2, page 2-16, third paragraph: The text references Figure 2-5 to explain the load*

estimates for the Pole Canyon ODA. Please provide some text for the sharp increases and declines shown in Panel E and Pole-ODA loading figures. Please provide some information for the initial loading.

Response: The description of predicted selenium loading from Panel D, Panel E, and the Pole Canyon ODA to Wells Formation groundwater and subsequently to the springs complex will be augmented to explain the sharp increases and declines shown in the loading estimates. Information concerning initial loading will also be provided. The text will be consistent with Appendix H of the RI Report.

SC-12 Section 2.4.3, page 2-18, bullets: *This section does not describe all the potentially complete significant exposure pathways. For example, significant risks were identified for terrestrial receptors that ingest COCs through the food web (e.g., through the consumption of small mammals). Please revise.*

Response: The text will be revised as requested.

SC-13 Section 2.4.3, page 2-18, fourth bullet: *This should be revised to read, “Ingestion of terrestrial plants growing on overburden material and soil.”*

Response: The text will be changed as requested.

SC-14 Section 2.4.4, page 2-19, first sentence: *Suggest revising “could present a risk” to “could present an unacceptable risk”*

Response: The text will be changed as requested.

SC-15 Section 2.4.4, page 2-19: *Amphibians should also be added to this discussion.*

Response: Amphibians will be added to the list of potential aquatic receptors in lower Sage Creek.

SC-16 Section 2.5.2, page 2-21, fourth full paragraph: *EPA published its final selenium criterion in June 2016. Please verify that the threshold values discussed in this paragraph are correct and modify the discussion regarding fish tissue in Crow Creek and North Fork Sage Creek if necessary.*

Response: The Site-Specific Ecological Risk Assessment utilized both the value from the USEPA 2015 Draft Criterion (12.48 mg/kg dry weight [dw]) for brown trout and Simplot’s derived combined endpoint data (14.14 mg/kg dw) for brown trout whole body effects thresholds derived based on egg effects thresholds. In the 2016 National Criterion, USEPA modified their calculations of the brown trout data, resulting in a new egg effects threshold (21 mg/kg dw egg selenium). Using the egg to whole body translator previously utilized and more recently cited in USEPA (2016), the whole body effects threshold for brown trout would be 14.48 mg/kg dw whole body Se. USEPA (2016) also revised their derivation of the whole body effects threshold for this study using a direct calculation method (e.g., a regression of whole body vs egg concentrations). Using their direct calculation method, the whole body effects threshold derived in USEPA (2016) is 13.2 mg/kg dw whole body selenium. Simplot

identified some uncertainty in the direct calculation method, as brown trout data from another study was utilized in the direct calculation method together with Simplot's brown trout data. Some uncertainty also exists in using a ratio approach to derive a translator value (e.g., 1.45) which is based on the median of multiple values. The text will be revised to include a discussion of whole body threshold values calculated based on the USEPA 2016 National Criterion derivation of the egg effects threshold (21 mg/kg dw egg selenium) translated using the value of 1.45 and directly calculated to derive a whole body selenium concentration effect threshold.

SC-17 Section 2.5.2, page 2-22, second paragraph: *Please provide more detail regarding the unacceptable risks to aquatic receptors.*

Response: Additional details will be added to this discussion to clarify risk to aquatic receptors.

SC-18 Section 2.5.2, page 2-22, last paragraph: *It is true that no wildlife population studies were conducted to, perhaps, more conclusively assess population-level effects. However, considering that significantly elevated risk based on COC concentrations in both site-wide and individual disposal units along with the use of effects-based TRVs and alternative TRVs all suggest that unacceptable risk could be present for populations, the usefulness of this discussion is questionable.*

Response: The paragraph will be modified to explain it is citing an uncertainty in conclusions of the ecological risk assessment regarding risk of significant impact to receptor populations.

SC-19 Figure 2-3: *Please label the faults and anticline/syncline names.*

Response: The Boulder Creek Anticline and West Sage Valley Branch Fault will be labeled on the map in Figure 2-3 as requested.

SC-20 Figure 2-5: *Please provide location in the document where modeling data can be found used to make these graphs.*

Response: Text will be added to state that modeling data can be found in Appendix H of the RI Report.

SC-21 Figure 2-6: *Please label x axis on the graphs.*

Response: The x axis in the graphs in Figures 2-5 and 2-6 will be labeled as requested.

SC-22 Figure 2-10: *Please update the figure to include work on the Pole Canyon NTCRA as current conditions exist.*

Response: The figure will be updated as requested.

SC-23 Section 3.0, page 3-1, second paragraph, last sentence: *Please correct the text: "meets meet ARARs".*

Response: The text will be corrected as requested.

SC-24 Section 3.1, page 3-1: *With the exception of arsenic for human health, the findings presented here are exclusively based on selenium. In the end, while it may be found that a Site remedy put in place to address risk posed by selenium could also remedy the risk for other COCs, the RI and risk assessments also identified that concentrations of other COCs in Site-media are elevated enough to pose an unacceptable risk and also exceed ARARs. The findings summarized in the FS need to include those for other COCs identified in the risk assessment process.*

Response: As noted in the response to General Comment 2, the document will be revised to provide a discussion of all COPCs that were identified above levels of concern in the risk assessments or above ARARs for water quality.

SC-25 Section 3.1, page 3-1, fourth bullet and Figure 3-3: *The text describes exceedances of whole body USEPA-derived and Simplot-derived fish tissue thresholds for selenium at Hoopes Spring and downstream of Hoopes Spring in lower Sage Creek. The text then references Figure 3-3, however; Figure 3-3 displays only Simplot-derived fish tissue threshold exceedances. Display USEPA-derived fish tissue threshold exceedances in Figure 3-3.*

Response: Figure 3-3 will be revised to display exceedances of the USEPA-derived whole body fish tissue threshold (13.2 mg/kg dw), based on the 2016 National Criterion, in addition to the Simplot-derived threshold (14.48 mg/kg dw).

SC-26 Section 3.1, page 3-1, fifth bullet: *Risk to terrestrial biota from soil is appropriately listed here. However, considering this, why did the Tech Memo not provide soil PRGs, especially since the primary source of contamination is from soil in overburden areas? If, as stated, selenium is the primary risk driver for soil, then why are soil PRGs for selenium absent from the FS? Also, there are alternatives discussed that include capping. What selenium concentration in soil would be acceptable if no PRG is available?*

Response: For terrestrial environments, the ecological risk assessment found that the relative selenium exposure is much greater from plants than from soil ingestion. Therefore, the draft document provided a PRG for vegetation only that would be protective for both exposure pathways. However, per the response to General Comment 2, a PRG for selenium will be calculated and provided for the soil ingestion-only exposure pathway. The discussion of effectiveness to meet this PRG will be added to Section 5.

SC-27 Section 3.2, page 3-3, first paragraph, first sentence: *Please replace “USEPA” with “Forest Service” as the Forest Service is the lead agency.*

Response: The text will be changed as requested.

SC-28 Section 3.3, page 3-5, Groundwater, second bullet: *What is considered a “reasonable time frame” given the circumstances of the Site?*

Response: The detailed analysis (to be provided in the second FS deliverable) will include an evaluation of predicted future changes in selenium concentrations in groundwater at key locations (and changes in concentration and load at the springs complex) for the No Further

Action alternative and the different action alternatives. This evaluation will provide the basis for establishing a “reasonable time frame” .

SC-29 Section 3.3, page 3-5, Groundwater, second bullet: *Please revise to state “Reduce or eliminated concentrations....”*

Response: The text will be modified as requested.

SC-30 Section 3.3, page 3-6, Groundwater, first bullet: *The reduction of loading of selenium should reduce surface water concentrations to below the Aquatic Water Quality Standard, similar to previous bullets.*

Response: The RAO will be added. Two RAOs will be included; one that addresses risks (from the Site-specific study) and one that addresses ARARs.

SC-31 Section 3.3, page 3-5, Groundwater, third bullet: *Please revise to state “Reduce or eliminate loading....”*

Response: The text will be modified as requested.

SC-32 Section 3.3, page 3-5, Groundwater, fourth bullet: *Please revise to state “Reduce or eliminate concentrations of COPCs in ground water utilized for stock watering to acceptable levels loading....”*

Response: The text will be revised as requested, except that “selenium and manganese” will be used instead of “COPCs”. The livestock risk assessment found that these COPCs were Site-related and present in concentrations that could pose a potential risk.

SC-33 Section 3.3, page 3-6, Soils, Overburden, and Vegetation: *The bullets should be quantified similar to initial groundwater bullets and reference the appropriate standard.*

Response: We are not aware of standards for remediation of soils, overburden, and vegetation. Protective concentrations are defined by the PRGs. The RAOs will be modified to replace the word “prevent” with “reduce or eliminate”.

SC-34 Section 3.3, page 3-6, Soils, Overburden and Vegetation: *Replace “Prevent” with “Reduce or eliminate” in the first two bullets. Replace “Prevent exposure of” with “Reduce or eliminate unacceptable risks to” in the third bullet.*

Response: The text will be modified as requested.

SC-35 Section 3.3, page 3-6, Surface Water: *The bullets should be quantified similar to initial groundwater bullets and reference appropriate standard.*

Response: As noted in the response to SC-30, two RAOs will be included for surface water where standards apply; one that addresses risks (from the Site-specific study) and one that addresses ARARs.

SC-36 Section 3.3, page 3-6, Surface Water: Replace “Prevent” with “Reduce or eliminate” in the first bullet; insert “Eliminate or” before “Reduce”. Replace “Prevent livestock exposure” with “Reduce or eliminate unacceptable risks to livestock” in the third bullet.

Response: The text will be modified as requested.

SC-37 Section 3.3, page 3-6, Surface Water, second bullet. Reduce selenium levels to “below levels that pose unacceptable risks for aquatic life”... Please change to “meet Idaho Chronic Cold Water Criteria”.

Response: The RAO will be added to address ARARs.

SC-38 Section 3.4, page 3-6: Describe how the PRGs be used. For example, are comparisons with PRGs intended to be based on a Site-wide UCL, maximum (not to exceed) point-by-point, panel-specific, etc.?

Response: The description of how the PRGs will be applied will be added to the document. Surface water and groundwater PRGs will be applied on a point-by-point basis. PRGs for soils, overburden, and vegetation will be applied on an area basis (which will be defined in the revised document).

SC-39 Section 3.4, pages 3-6 to 3-8: Please revise this section to reflect the Final Selenium Criterion published by USEPA in 2016. Please revise the last sentence to reflect that the current selenium standard for Idaho will be applied until IDEQ and USEPA adopt Simplot’s proposed SSSC for the Smoky Canyon Mine Site.

Response: The text will be revised as requested.

SC-40 Section. 3.4, page 3-8, second full paragraph, Regulated Surface Water: What is the basis of the “simple ratio/translation factor” of 1.45? Please explain.

Response: Text will be added to explain that the ratio comes from the SSSC study on developmental toxicity in brown trout. Specifically, the translator is the ratio of egg selenium to whole body selenium in female trout. These data are presented in Appendix B of the USEPA 2016 National Criterion.

SC-41 Section 3.4, page 3-9, Non-Regulated Surface Water: The text provides no explanation of the PRG selected for arsenic in the non-regulated surface water in Table 3-3. Please explain.

Response: Text will be added to explain that the PRG for livestock is a risk-based value from the livestock risk assessment and the PRG for humans is the drinking water standard.

SC-42 Section 3.4, page 3-9, Soils and Vegetation, second paragraph, final sentence: Please cite a source to provide evidence of wildlife behavioral avoidance of high selenium forage.

Response: A citation will be added.

SC-43 Section 3.4, page 3-9, Soils and Vegetation, third paragraph: This paragraph says that “risk to

overall Site populations is low”. However, on Page 2-22, it was stated that “no data are currently available to address the presence or absence of population-level effects.” Suggest revising the sentence to read as follows, “However, although uncertain, risk to overall Site populations is expected to be low because ...”

Response: The text will be modified as requested.

SC-44 Section 3.4, page 3-9, Soils and Vegetation, fourth paragraph: *The ecological risk assessment concluded that whether evaluating exposures on a Site-wide basis or individual units, the estimated selenium intake was greater than TRVs based chronic reproductive endpoints (whether using geometric means of NOAELs or LOAELs). Therefore, what evidence is there to suggest that the potential for acute risk to wildlife populations is the primary risk driver? The findings of the risk assessment suggest that this is unfounded and that the wildlife PRGs need to be protective of chronic exposures. PRGs need to also be established for the other COCs that were identified.*

Response: The overall site PRG that is recommended for selenium is based on managing risk of exposure to the livestock and wildlife on the ODAs, which are the primary areas of potential exposure to elevated concentrations of selenium and the other COCs. Selenium PRGs are proposed as the main focus for evaluation of remedial action effectiveness. However, the FS will evaluate how each of the remedial alternatives affects risk from COCs other than selenium.

Two selenium PRGs are proposed, both based on managing risk of selenium toxicity to livestock ingesting vegetation from the site: an Acute PRG of 30 mg/kg and a Chronic PRG of 5 mg/kg (or background, whichever is higher). The acute PRG would be applied to individual ODAs or relatively small areas to help manage risk of short-term (hours to days) acutely toxic exposures to selenium-hyperaccumulating plant species on ODAs or in adjacent seep areas. The Chronic PRG would be the goal for the Site-wide average selenium concentrations (e.g., as UCL95), and is intended to manage risk of chronic toxicity resulting from more long-term (weeks to months) grazing/foraging over large areas of the site.

The proposed PRGs are also protective of the population-based ecological assessment endpoints. Similar to livestock, wild ungulates such as deer and elk could graze/browse on the ODAs, but are unlikely to depend on the ODAs for food for long periods. Therefore, managing the risk based on acute exposure to hyperaccumulating plants on the ODAs would be an important risk management goal. Managing chronic risk of exposure over the entire Site would be based on Site-wide average concentrations and the chronic PRG.

SC-45 Section 3.4, page 3-9, Soils and Vegetation, fourth paragraph: *The conclusions of the ecological risk assessment identified several COCs (e.g., Se and Cu) for terrestrial carnivores. How could these receptors be protected by a vegetation PRG for selenium? Soil PRGs are necessary to ensure protectiveness to for COCs and receptors. Please provide soil PRGs.*

Response: The revised TM will include soil PRGs.

SC-46 Section 3.4, page 3-9, fourth paragraph: *Why is the PRG for selenium in vegetation to be based on a level which is above levels that Simplot indicated in the Conda Mine Livestock Risk*

Assessment would result in acute effects? From the Conda Mine Draft Final Livestock Risk Assessment (Formation, June 2016), Aiello (2002) provides a reference of 30 ppm selenium for “blind staggers associated with the consumption of seleniferous forage with moderate levels of selenium.” Please explain.

Response: The PRG will be revised to 30 mg/kg, consistent with the Conda assessment.

SC-47 Section 3.4, page 3-9, Soils and Vegetation: *How will the goal to “reduce the average arsenic concentration of surface materials at the Site” be considered complete? The goal is too broad to measure for success. As it reads now, any reduction in arsenic would indicate the goal was met. Please be specific.*

Response: Please see the response to General Comment 2.

SC-48 Table 3-1, ARARs. Fences in General (LEAs), Idaho Code 35-101 to -112 should be added as potentially applicable as it would be appropriate if fencing is required as part of a selected remedy for the fencing of private lands.

Response: The regulation will be added as requested.

SC-49 Table 3-3 PRG for Surface Water: *What is the basis for the “Site Specific Goal 10.7 ug/L Se”? Please elaborate.*

Response: The basis for the cited goal will be described in Section 3.4; see response to Specific Comment 40.

SC-50 Figure 3-7: *Include springs such as Hoopes and South Fork Sage Springs on the figure.*

Response: Hoopes Spring, South Fork Sage Springs, and Little Smoky Spring will be labeled on Figure 3-7 as requested.

SC-51 Section 4.3.1, page 4-3, first sentence: *Please revise to state that a No Action alternative is required to be analyzed. However, as previous work has occurred at Smoky Canyon, this alternative becomes a No Further Action.*

Response: The text will be revised as requested.

SC-52 Section 4.3.1, page 4-4, lines 1 and 2: *Operations and maintenance activities for the ODA and pipeline would not cease, as those removal actions were implemented under current settlement agreements. Please delete.*

Response: The text will be revised as requested.

SC-53 Section 4.3.5, page 4-5, first paragraph, last sentence: *This GRA may be implemented alone “in certain areas or in combination with containment actions”. Please change the portion in quotes to read “or combined with other actions”.*

Response: The text will be revised as requested.

SC-54 Section 4.3.5, page 4-5, second paragraph, last sentence: Please replace “containment” with “other”.

Response: The text will be revised as requested.

SC-55 Section 4.4, page 4-8, second paragraph, Screening of Remedial Technologies and Process Options for Technical Implementability: The text states “Selenium is the primary contaminant at the Site, which limits the ability of many treatment processes. Remedial technologies and process options that are not applicable to treatment of selenium and arsenic were eliminated from further evaluation.” Treatment processes that may be used in conjunction with other processes should be evaluated, or provide a justification why it is not evaluated. While selenium is the primary contaminant, all COC’s must be addressed.

Response: The screening step text will be revised to provide an evaluation of COPCs.

SC-56 Section 4.4.1, page 4-8, first paragraph: Please revise to state that a No Action alternative is required to be analyzed. However, as previous work has occurred at Smoky Canyon, this alternative becomes a No Further Action alternative.

Response: The text will be revised as requested.

SC-57 Section 4.4.1, page 4-8, first paragraph, third sentence: Please replace “be retained” with “continue”.

Response: The text will be revised as requested.

SC-58 Section 4.4.1, page 4-8, second paragraph: Operations and maintenance activities for the ODA and pipeline would not cease, as those removal actions were implemented under current settlement agreements. Please delete.

Response: The text will be revised as requested.

SC-59 Section 4.4.2, page 4-9, fourth paragraph Enforcement and Permit Tools: It is unclear why the author states deed restrictions are viable for use at the Site but states enforcement agreements are only binding on the signatories and the property restrictions are not transferred through a property transaction. Enforcement and permit tool appear to be implementable and should be retained.

Response: The text will be revised to state that enforcement and permit tools are viable for use at the Site and are retained for further evaluation.

SC-60 Section 4.4.2, page 4-9, fifth paragraph: Please add grazing annual operating instructions to the list of information devices that can be used to inform grazing permittees that residual contamination may remain at a site.

Response: The text will be revised to add grazing instructions as an information device. Grazing annual operating instructions can be used to inform grazing permittees that residual

contamination may remain at a site.

SC-61 Section 4.4.4.1, page 4-11, third paragraph, Soil Cover: *Any soil cover or evapotranspiration cap/ cover should take into consideration the need to store snow melt and rain water in the cover material during plant dormant cycles and may require more topsoil cover given the elevation. Please consider Water Balance Covers as an alternative.*

Reference: Water Balance Covers for Waste Containment: Principles and Practice; William H. Albright, Desert Research Institute, Reno, Nevada USA; Craig H. Benson, University of Wisconsin, Madison, Wisconsin USA; W. Jody Waugh, S.M. Stoller, Co., Grand Junction, Colorado USA; September 29, 2009

Response: Water balance covers will be added as a process option for the screening of remedial technologies and process options for technical implementability presented in Section 4.4; the evaluation of remedial technologies and process options for effectiveness, implementability, and cost described in Section 4.5; and to Figures 4-1, 4-2, and 4-3. They will be retained as a potential process option to be included in infiltration-reduction covers in Alternatives 3 and 4 (described in Section 5.1.3).

SC-62 Section 4.4.4.1, page 4-13, Dinwoody Cover, first paragraph, second sentence: *Please remove the word “abundant”. Although there is available Dinwoody formation material present, there is no evidence presented that it is abundant in the amount that it can be used for all cover systems at the Smoky Canyon Mine.*

Response: The text will be modified to be consistent with the conclusions in the CERCLA Cover Material Source Evaluation Technical Memorandum; submitted in June 2016 and approved as final in July 2016.

SC-63 Section 4.4.4.2, page 4-14, Rock Grouting: *The statement “Injection of grout is not feasible because the bedrock is fractured; the vibrating beam method is not feasible because of the highly fractured nature of the Wells formation” is incorrect and should be removed. Grout is routinely used to seal up fractured rock. It is agreed that the alternative has low feasibility because of the extent required to control ground water flow, and the depth at which grouting would be required to control that flow.*

Response: The text will be revised to explain that pressure injection of grout and grout placement using the vibrating beam method are not feasible because of the extent required to control groundwater flow and the depth of the Wells Formation aquifer. Rock grouting is not retained as a process option for further evaluation. The text for slurry walls and sheet piling will also be revised to emphasize the number of sources, depth of the Wells Formation aquifer, and the extent of slurry walls or sheet piling that would be necessary to control groundwater flow.

SC-64 Section 4.4.6.1, page 4-18. Excavation: *The text states that excavation and removal of source materials is a viable option for mining features at the Site that are of relatively small volume. Please define small volumes, beyond detention basin sediments.*

Response: The text will be revised to describe conventional excavation in a more general way for

any volume of material, and to state that excavation could be easily implemented for excavation and consolidation of solid materials (waste rock) or excavation and reuse of soils as part of the remedial action and will be retained as a process option for further evaluation.

SC-65 Section 4.4.6.2, pages 4-19 and 4-20, Collection: *This preface focuses specifically on groundwater and does not address surface water, although it is referenced in the text. Please delete “surface water” from the last sentence.*

Response: The preface will be revised to address groundwater or surface water.

SC-66 Section 4.4.6.2, page 4-19, Extraction Wells: *This section notes that extraction wells are not retained as a remedial technology because the hydrogeology is complex. The vast majority of Superfund sites have complex hydrogeology. While the geology at the site is complex, with groundwater flow along preferential pathways and along the West Sage Valley Branch Fault and discharges at Hoopes Springs and South Fork Sage Creek Springs, multiple extraction wells along the preferential flow pathway is possible, with the extracted water treated and reintroduced. Also, it is possible to extract groundwater at the site, for example see the culinary well and production well. Please include extraction wells as a technology or provide additional detailed explanation for not including extraction wells as a remedial technology.*

Response: The text will be revised to state that groundwater extraction will be retained at this stage of the screening, because it is implementable at the Site. The option will be screened against effectiveness, implementability, and cost in Section 4.5 relative to the physical situation where groundwater surfaces at the springs complex.

SC-67 Section 4.4.6.3, page 4-20, Onsite Consolidation: *Please further define small volumes of material such as treatment residuals for retention of this option.*

Response: The text will be revised to provide further definition of materials that could be disposed onsite. These could include solid treatment residuals from treatment systems (i.e., sludge from the FBR system or spent media from a passive treatment system) as long as materials are non-hazardous characteristic. The disposal setting would need to be suitable to prevent remobilization of COPCs into the environment.

SC-68 Section 4.4.6.3, page 4-20, Onsite Consolidation: *Onsite consolidation of larger volumes of overburden, if used to backfill pits and reclaim slopes, would be beneficial. Onsite consolidation alternatives should not be limited to just small volumes of material at this stage of the process (technology screening).*

Response: The text will be revised to retain onsite consolidation of larger volumes of overburden material.

SC-69 Section 4.4.6.3, page 4-20, Offsite Disposal: *This is considered to be a suitable process option for removal and disposal of small volumes of hazardous material such as treatment residuals. Equally, this is an option for all the material and should be retained for all the solid media.*

Response: The text will be revised to state that offsite disposal is potentially implementable and is retained for all media at this stage of the screening. It will be further screened against the

effectiveness, implementability, and cost criteria in Section 4.5.

SC-70 Section 4.4.6.3, page 4-21, Offsite Disposal: *This alternative needs to be retained at this point as it is technically feasible for more than small volumes of material, and can be used in combination with other treatment methods.*

Response: The text will be revised to state that offsite disposal is technically feasible for small and large volumes of material and could be used in combination with other treatment methods and is retained for further evaluation.

SC-71 Section 4.4.7.1, page 4-24, Adsorption: *Activated Carbon is a proven technology and as stated, can remove low concentration levels of arsenic and other metals. While it may not be a standalone technology for selenium, it may work in conjunction with other technologies and should be retained. The same comment applies for Metal Oxide. It has been proven to remove selenium concentrations and may work in conjunction with other technologies.*

Response: The text concerning Activated Carbon will be revised to state that although carbon adsorption is an effective method of removing organic constituents, it is only moderately effective for removal of inorganic constituents. Overall performance typically is related to water chemistry. While carbon adsorption may not be a standalone technology for selenium removal, the process may work in conjunction with other technologies and is retained for further consideration.

The text concerning metal oxide adsorption will also be revised to state that metal oxides such as zero-valent iron or activated alumina are capable of selective metal adsorption. As water flows through a bed of these materials, metalloid ions (e.g., arsenic) are adsorbed by the surface of the iron or alumina particles in the bed. The process is pH dependent and results in a solid residue that may require further treatment and disposal. While metal oxide adsorption may not be a standalone technology, the process may work in conjunction with other technologies and is retained for further consideration.

SC-72 Section 4.4.7.1, page 4-25, first paragraph, third sentence, Biological /Biodegradation: *Which ODA seep did the bioreactor treat? Was it at Smoky Canyon Mine or another mine?*

Response: The text will be expanded to describe the semi-passive biological treatment system pilot study that was conducted at the toe seep (DS-7) at the Panel D external ODA at the Smoky Canyon Mine. The draft study report was recently submitted.

SC-73 Section 4.4.7.1, page 4-24, Chemical, Chemical Precipitation. *The final sentence says that the process is potentially implementable but does not say whether it is retained for further consideration or not.*

Response: The text will be revised to state that precipitation is considered potentially implementable for removal of selenium in conjunction with other treatment technologies and is retained for further evaluation in Section 4.5.

SC-74 Section 4.4.7.1, page 4-25, Chemical, Oxidation /Reduction: *The final sentence says that the process may improve separation characteristics if combined with other technologies but does not*

say whether it is retained for further consideration or not.

Response: The text will be revised to state that oxidation/reduction may improve the separation characteristics for removal of selenium if used in conjunction with other treatment technologies and is retained for further evaluation in Section 4.5.

SC-75 Section 4.4.7.1, page 4-26, Ex Situ, Soils and Solids, Physical, Stabilization/Fixation. *While this technology might not be implementable for the entire volume of overburden, it might be applicable to “smaller volumes” of overburden used in the cover process to aid in immobilizing contaminants in upper portions of the overburden. This technology should not be eliminated in its entirety at this stage of the process.*

Response: The text will be revised to state that stabilization/fixation may be applicable to smaller volumes of overburden used in the cover process to aid in immobilizing contaminants in the upper portions of the overburden, and as such, stabilization/fixation is potentially implementable and is retained for further evaluation in Section 4.5.

SC-76 Section 4.4.7.1, page 4-27, Chemical Extraction: *While the effectiveness of extraction in the treatment of selenium has not been proven, it may be a technology that could work and should be retained. Unproven but potential technology vs. technology that will not work are different. Further research may be required.*

Response: The text will be revised to explain that while solvent extraction is not a proven treatment method for inorganic constituent removal, further research may be required. Solvent extraction is considered potentially implementable with additional research and will be retained for further evaluation in Section 4.5.

SC-77 Section 4.4.7.1, page 4-27, Chemical: *Both the Oxidation/Reduction paragraph and the Hydrolysis paragraph fail to say if the process is retained or not.*

Response: The text will be revised to state that oxidation/reduction has been retained for further consideration. The text in the following paragraph will be revised to state that hydrolysis cannot be implemented technically and has not been retained.

SC-78 Section 4.4.7.1, page 4-27, Chemical, Oxidation Reduction. *Since this technology “could be used in conjunction with other treatment options to reduce the toxicity of process solids” it should be retained, not deleted at this stage. Screening Comment in Figure 4-2, page 4 of 4 and Process Option, should reflect the retention of this option.*

Response: The text in Section 4.4.7.1 and Figure 4-2 will be revised to state that oxidation/reduction may be used in conjunction with other treatment technologies and this process option is retained for further evaluation.

SC-79 Section 4.4.7.2, page 4-28: *Please correct heading “Solis and Solids”.*

Response: The heading will be corrected.

SC-80 Section 4.4.7.1, pages 4-26 and 4-28: *Soils and Solids, this term is used both on page 4-26 and*

4-28 as a section heading, and in Figure 4-2 it is used as “Solids and Soils”, reversing the two terms. Please be consistent. Choose one or the other configurations, and stick with the chosen convention throughout the text and Figures.

Response: The text and figures will be revised for consistency as requested.

SC-81 Section 4.4.7.2, page 4-29, Thermal Vitrification: *This technology has the potential to work and should be retained. Large volumes of material, thus larger costs are not appropriate to be screening out at this stage.*

Response: The text will be revised to state that thermal vitrification is potentially implementable and is retained for further consideration in Section 4.5.

SC-82 Section 4.4.7.2, page 4-28 & 4-29, In Situ Treatment, Soils and Solids, Physical, Stabilization/Fixation: *What is meant by “potentially hazardous byproducts”? Please explain this term.*

Response: The reference to potentially hazardous byproducts is incorrect and will be removed. Although stabilization/fixation may not be implementable for large volumes of overburden material, it may be applicable for immobilizing small volumes of material as part of the cover process and will be retained for further consideration in Section 4.5.

SC-83 Section 4.5.2, page 4-31, Institutional Controls, second paragraph: *Please replace “BLM lease areas” with Caribou-Targhee National Forest.*

Response: The text will be revised to state that the land where mining activities have occurred at the Site (and where the source areas are located) is federal land managed by the Caribou-Targhee National Forest.

SC-84 Section 4.5.2, page 4-31, Access Controls: *Please move “signage” and grazing controls to Institutional Controls as signs and grazing controls are an administrative mechanism. Signs do not prevent access, but provide information. Forest closure orders can be included in institutional controls to prevent access. Access controls should be those items that prevent physical access, such as fences and gates.*

Response: The text will be revised as requested. Sections 4.3.2 Institutional Controls, 4.3.3 Access Controls, 4.4.2 Institutional Controls, and 4.4.3 Access Controls, and Figures 4-1, 4-2, and 4-3 will be revised for consistency with this comment.

SC-85 Section 4.5.7, page 4-35, first paragraph, last sentence: *What does “difficult to implement in remote locations” mean? Please explain this in detail.*

Response: The text will be revised to clarify this sentence. Access to the pilot treatment system to adjust operational parameters to maintain treatment operation was difficult and potentially unsafe during the winter months because of the steep, snow-covered unimproved road leading to the seep and treatment system. Although the pilot treatment system was supposed to be semi-passive that required little or no maintenance, the system was more difficult to operate during the winter due to freezing within the bioreactors, and required significant

maintenance during spring restart.

SC-86 Section 4.5.7, page 4-35, first paragraph, last sentence: *What does “relatively low effectiveness” mean? Please explain this in detail as the text states that the selenium removal efficiency is between 72% and 97% (97% does not seem low). While 60-72% effectiveness might not be considered high enough to be used as a stand-alone technology, it has potential as an element of a combined technology approach, especially on a larger scale. On the surface this technology is both effective and implementable for a low to moderate cost. Please provide more detailed explanation as to why this technology is being screened out at this stage of the study.*

Response: The text will be revised using the results of the recently submitted DS-7 Pilot Study Report (Formation 2016) and biological degradation will be retained as a potential treatment technology for the development and screening of alternatives.

SC-87 Table 4-2 and Figure 4-1, Access Controls: *Please move “Signage” and “Grazing Controls” to the “Institutional Controls” process option box.*

Response: The table and figure will be revised as requested.

SC-88 Table 4-2, page 1 of 4, Institutional Controls, Screening Comment: *Why are administrative orders and consent decrees screened out? Administrative Orders and Consent Decrees are legally binding and can be enforced.*

Response: Institutional Controls – Enforcement and permit tools such as administrative orders and consent decrees will be retained for further evaluation. Figure 4-2 and the text in Sections 4.4.2 and 4.5.2 will be revised accordingly.

SC-89 Figure 4-2, page 3 of 4, Mechanical Evaporation, Screening Comment: *“Overburden” should be changed to read “Water”. This method deals with liquids, not solids.*

Response: Figure 4-2 will be corrected.

SC-90 Figure 4-2, page 3 of 4, Groundwater and Surface Water Treatment, In Situ, Biological, Biodegradation, Screening Comment: *This statement is not accurate. It is applicable to inorganic constituents, although it may not be appropriate or effective for this situation. Please see comment for Section 4.4.7.2, page 4-28, In Situ Treatment.*

Response: The screening comment will be revised and in-situ biological biodegradation will be retained for further consideration.

SC-91 Figure 4-2, page 4 of 4, Solids and Soils Treatment, Physical Stabilization, Fixation, Screening Comment: *The text states there are “Potentially hazardous byproducts”, but no mention is made of this in the text on page 4-26. Please provide a detailed definition in the text as to what is meant by this term.*

Response: The reference to potentially hazardous byproducts is incorrect and will be removed. Although stabilization/fixation may not be implementable for large volumes of overburden material, it may be applicable for immobilizing small volumes of material as part of the

cover process and will be retained for further consideration.

SC-92 Figure 4-2, page 4 of 4, Solids and Soils Treatment, Physical, Separation, Screening

Comment: Please replace the term “ideal” with “conductive”.

Response: The figure will be revised as requested.

SC-93 Figure 4-2, page 4 of 4, Solids and Soils Treatment, Physical, Thermal, Incineration,

Screening Comment: This is an alternative which is used on Solids and Soils media, and does not reference the groundwater at the site. Please correct the screening comment to reflect the media being referenced.

Response: The screening comment will be corrected to refer to solids and soils.

SC-94 Figure 4-2, page 4 of 4, Solids and Soils Treatment, Physical, Thermal, Desorption, Screening

Comment: Please correct this comment to reflect the media being referenced.

Response: The screening comment will be corrected to refer to solids and soils.

SC-95 Figure 4-2, page 4 of 4, Solids and Soil Treatment, Ex Situ, Chemical, Hydrolysis, Screening

Comment: Add to the comment that this treatment is not effective for selenium removal.

Response: The screening comment will be revised to state that hydrolysis is not applicable for removal of selenium from solids and soils.

SC-96 Figure 4-2, page 4 of 4, Solids and Soil Treatment, Ex Situ, Biological, Enhanced

Biodegradation: is present in the text on page 4-27, yet is not present on Figure 4-2. Please include this treatment option in the Figure 4-2 as referenced in the text.

Response: Enhanced biodegradation will be added to Figure 4-2 for consistency with the text.

SC-97 Figure 4-2, page 4 of 4, Solids and Soil Treatment, In Situ, Physical/Chemical, Aeration,

Screening Comment: The comment focuses on groundwater but the technology is pertaining to solids and soils. Please correct this comment to reflect the appropriate media being evaluated. It is solids, not groundwater.

Response: The screening comment will be corrected to refer to solids and soils.

SC-98 Figure 4-2, page 4 of 4, Solids and Soil Treatment, In Situ, Thermal, Desorption, Screening

Comment: Please correct the comment to accurately reflect the media being evaluated. It is solids, not groundwater.

Response: The screening comment will be corrected to refer to solids and soils.

SC-99 Figure 4-2, page 4 of 4, Solids and Soil Treatment, In Situ, Biological, Enhanced

Biodegradation, Screening Comment: Please correct the comment to accurately reflect the media being evaluated. It is solids, not groundwater.

Response: The screening comments will be corrected to refer to solids and soils.

SC-100 Section 5.1.1, page 5-1, Alternative 1 – No Further Action: *O&M activities are required to be maintained under the 2006 and 2013 NTCRA OM&M requirements of the Agreements. Please revise.*

Response: The text will be modified as requested.

SC-101 Section 5.1.2, page 5-2, Alternative 2 – Barrier Covers: *The inclusion of deed restrictions, access controls, and water treatment into this paragraph is confusing. Please separate these out in this alternative and the other alternatives to make this more intuitive and readable.*

Response: The text will be separated into two paragraphs to provide a clearer description.

SC-102 Section 5.1.2, page 5-2, Alternative 2 – Barrier Covers: *It is not clear why Panel E is not included in this section, as Section 3.1 indicates that there are risks downgradient at EP-2, EP-4, and ES-4. Please explain.*

Response: Text will be added to explain that Panel E is not included in this section because the existing cover (installed as post-mining reclamation) is sufficient to provide protection of terrestrial biota (see Figure 2-10) and is predicted to significantly reduce releases of selenium to groundwater to well below levels predicted for Panels A and D (see Figure 2-6). Therefore additional remedial actions involving covers are not proposed at Panel E. Actions to prevent future acute risks to livestock will focus on preventing access to ponds and seeps and associated vegetation with COPC concentrations above levels that represent a potential risk, and will focus on preventing access until other actions become effective. Similarly, the NTCRAs performed at the Pole Canyon ODA are predicted to provide protection over time and no additional remedial action is proposed at that location.

SC-103 Section 5.1.3, page 5-3, Alternative 3: *It is not clear why this alternative chooses to apply one type of cover on one area and another on a different area. There is no explanation as to the reasoning for the selection of which cover goes on which area. Why not use both covers on both areas? Please explain your reasoning and analysis of why this combination is chosen over other possible combination choices.*

Response: Alternatives 2, 4, and 5 each contain the same covers on Panel A and Panel D. Alternative 3 allows for a combination of covers to be evaluated in the detailed and comparative analysis. Text will be added to clarify the logic of the covers contained in Alternative 3 to allow for an assessment of the relative effect of the different covers on selenium loading to the springs complex over time. As shown in Figure 2-6, it is estimated that the selenium loading to the Wells Formation from Panel A and Panel D is of similar magnitude. Panel D is closer to the springs complex than Panel A and any source control at Panel D will have a quicker effect on selenium loading at the springs. It is also possible that this cover combination will meet the requirements of the RAOs, to be assessed in the detailed and comparative analysis.

SC-104 Section 5.2.1.3, page 5-4, Implementability: *No further action is implementable. Please revise.*

Response: The text will be changed as requested.

SC-105 Section 5.2.2.1, page 5-5, first paragraph: *The text does not provide the effectiveness of remedy for the soils with elevated arsenic and selenium*

Response: Text will be added to describe the effectiveness of the remedy for the soils with elevated arsenic and selenium.

SC-106 Section 5.2.2.1, page 5-5, Effectiveness, second paragraph: *The phrases “reduce over time” and “in the future” are vague; please provide more explanation of the time needed. How much time? How far into the future? How long is “eventually” in years or some other unit of measure?*

Response: Text will be added to provide a clearer description of the time needed and to state that more specific information will be provided in the next FS deliverable by conducting groundwater modeling to support the detailed and comparative analysis of remedial alternatives.

SC-107 Section 5.2.2.2, page 5-6, Implementability: *This section does not discuss the Implementability of the Biological Water treatment portion of the alternative or the feasibility of increasing the operation from 2000gpm to 3000gpm.*

Response: Text will be revised to discuss the pilot study implementability and feasibility of increasing the treatment flow.

SC-108 Section 5.2.3.1, page 5-7, Effectiveness: *A direct comparison of permeability is needed between the different cover alternatives. If 42% is stated in Alternative 2, what is the amount for Alternatives 3 & 4 for comparison?*

Response: As discussed on the October 18 conference call between Simplot and the agencies, effectiveness of different types of covers in reducing percolation at Smoky Canyon is currently being tested and evaluated. Therefore, for the FSTM#1 Simplot proposes to use the terms “low”, “moderate”, and “high” when describing the effectiveness. Percolation reduction rates will be quantified in the detailed analysis and used in modeling of the effectiveness of different cover types on reducing selenium concentrations in groundwater and surface water.

SC-109 Section 5.2.3.1, page 5-7, first paragraph: *Please provide the same level of detail as provided for the Barrier Covers - Section 5.2.2.1. The current text is repeat of Section 5.1.*

Response: Text will be added to this section to provide the same level of detail as Section 5.2.2.1.

SC-110 Section 5.2.3.4, page 5-8, Screening Assessment: *It is not clear how this alternative is “treating more water from the spring’s complex”, since both Alternatives 2 & 3 use the same gpm numbers for water treatment. Please explain or correct this statement.*

Response: The text will be edited to provide a clearer description.

SC-111 Section 5.2.4.1, page 5-8, first paragraph: *The text does not provide the evaluation of media*

for effectiveness. Provide consistent evaluation of effectiveness for all media and containments for all alternatives

Response: Text will be added to provide a consistent evaluation of effectiveness in meeting RAOs and PRGs for all media and COPCs.

SC-112 Section 5.2.5.4, page 5-11: *Please correct “Alternative 4” to read Alternative 5 at the beginning of the paragraph.*

Response: The text will be modified as requested.

SC-113 Table 5-1: *The cover thicknesses in the table do not appear to match the cover descriptions in the text. Furthermore, please provide a cost column.*

Response: The table will be corrected as requested and a cost column will be added.